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REMARKS/ARGUMENTS

This response is timely filed as it is filed within the three (3) month shortened statutory period for response to the Final Action. Further, as this response is hereby filed within two (2) months of the mailing date of the Final Action, it is understood that the shortened statutory period will expire on the date the advisory 5 action is mailed should such advisory action not be mailed until after the end of the three-month shortened statutory period.

**Election/Restrictions**

The Final Action has identified that claims 12, 13 and 15-20 have been withdrawn from further consideration and the balance of this response is based on 10 such withdrawal.

Claims 1-7 and 9-30 remain in the application with claims 12, 13 and 15-20 having been withdrawn from further consideration.

**Claim Rejections - 35 U.S.C. §102/103**

1. Claims 1-5, 7-10, 21, 22, 24, 29 and 30 were rejected under 35 U.S.C. 15 §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over U.S. Patent 3,697,455 to Spenadel et al. (hereinafter "Spenadel")

The rejection of claim 8 is moot in view of the prior cancellation of 20 claim 8. Claim 1 is an independent claim with claims 2-5, 7, 9, 10 and 29 dependent

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thereon. Claim 21 is an independent claim with claims 22, 24 and 30 dependent thereon.

These rejections of pending claims are respectfully traversed.

The Final Action asserts that Spenadel discloses:

5 a composition that comprises Viton A, blowing agent, solid fuel such as magnesium, plasticizer, and curing/crosslinking agent (col. 1, lines 34-42 and lines 69-72; col. col. [sic] 4, lines 20-31, and Recipe table. The composition is heated to form a porous structure (see examples). It is also disclosed that a known blowing agent is sodium bicarbonate (example 1).

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Spenadel, however, specifically states:

15 The present invention relates to a novel method for making cellular substances which are useful in rocket propellant systems. Specifically, it involves the use of compatible organic blowing agents in the preparation of sponges that have substantially uniform cells. In one aspect of the invention the sponge is blown in such a manner that there is little, or no, air in the cells of the finished sponge. In another aspect of the invention, a substantially gas-free organic blowing agent is employed which volatilizes at a temperature which is lower than, but close to, the temperature at which the sponge is cured. [Column 1, lines 11-20, emphasis added.]

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25 The claimed invention does not simply require the inclusion of a blowing agent. Rather, independent claims 1 and 21 each specifically require that the claimed foamable igniter compositions include "a thermally decomposable blowing agent effective upon decomposition to render the foamable igniter composition porous" The inclusion and use of such thermally decomposable blowing agents, as

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required in the claimed invention, is the antithesis of the inclusion and use of "substantially gas-free organic blowing agents which volatilize at a temperature which is lower than, but close to, the temperature at which the sponge is cured" as disclosed and taught in Spenadel. Nowhere does Spenadel show or suggest a 5 foamable igniter composition that includes a thermally decomposable blowing agent effective upon decomposition to render the foamable igniter composition porous, such as required in the claimed invention.

The Final Action further asserts:

10 It would also be obvious to use sodium bicarbonate as a blowing agent since Spenadel suggest that it is a known blowing agent that can be used. [Emphasis added.]

The Final Action, however, fails to recognize or appreciate that Spenadel does not disclose or teach the use of sodium bicarbonate as a blowing agent in the Spenadel compositions let alone in a composition that includes a fluoropolymer 15 binder oxidant, as required in the claimed invention.

The Recipe table, appearing in Example 1 of Spenadel to which the Final Action refers, lists the components of the example composition. This list of components includes n-Octane presumably as the liquid blowing agent for use therein. Sodium bicarbonate is NOT included in the "recipe" shown in Example 1.

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The sole Final Action-cited prior art disclosure relating to the use of sodium bicarbonate as a blowing agent appears to be the following statement appearing in Spenadel in the discussion relating to Example 1:

5 A similar sponge of the same density made with sodium bicarbonate as the blowing agent has a tensile strength of about 10-15 p.s.i.

The "recipe" shown in Example 1, however, does not include:

1. "a fluoropolymer binder oxidant" as required by the claimed foamable igniter composition;
2. "a plasticizer effective to render the fluoropolymer binder oxidant flexible" as also required by the claimed foamable igniter composition;
3. "a metal fuel which is reactive with the fluoropolymer binder oxidant" as further required by the claimed foamable igniter composition; and
4. "a crosslinking agent effective to structurally stabilize the foamed igniter substance" as still further required by the claimed foamable igniter composition.

10 Correspondingly, the "similar sponge" referred to in Spenadel and made with sodium bicarbonate as the blowing agent does not include: "a fluoropolymer binder oxidant" as required by the claimed foamable igniter composition; "a plasticizer effective to render the fluoropolymer binder oxidant flexible" as also required by the claimed foamable igniter composition; "a metal fuel which is reactive

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with the fluoropolymer binder oxidant" as further required by the claimed foamable igniter composition; and "a crosslinking agent effective to structurally stabilize the foamed igniter substance" as still further required by the claimed foamable igniter composition.

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Moreover, Spenadel expressly teaches:

Thus, for the purpose of the present invention the blowing agent should contain 3 to 10 carbon atoms and have a boiling point above 70° C. but not more than 200° C., the upper limitation being governed by the maximum cure temperature. [See column 2, lines 26-30.]

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Sodium bicarbonate neither contains "3 to 10 carbon atoms" nor has "a boiling point above 70° C. but not more than 200° C." as expressly taught in Spenadel. Thus, directly contrary to the assertion in the Final Action that Spenadel suggests that sodium bicarbonate "is a known blowing agent that can be used", Spenadel teaches that sodium bicarbonate is NOT a blowing agent for use in the Spenadel composition.

15

The use of sodium bicarbonate in the composition of Spendale is contrary to the expressed teachings appearing in Spenadel.

Moreover, independent claims 1 and 21 each specifically require that the claimed foamable igniter compositions include "a thermally decomposable blowing agent effective upon decomposition to render the foamable igniter

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composition porous". The blowing agents of Spenadel are NOT so thermally decomposable but instead volatilize when subjected to sufficient heat.

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Spenadel fails to show or suggest a foamable igniter composition that includes a thermally decomposable blowing agent effective upon decomposition to render the foamable igniter composition porous, as claimed.

Applicants do not claim to have invented or discovered a new blowing 5 agent let alone the use of sodium bicarbonate as a blowing agent, rather what is claimed are specific and particular foamable igniter compositions which include specific and particular other ingredients and, in the case of independent claim 21 and the claims dependent thereon, which include specific and particular other ingredients in specific and particular relative amounts.

10 For example, independent claim 1 requires the foamable igniter composition thereof to include: a fluoropolymer binder oxidant; a plasticizer effective to render the fluoropolymer binder oxidant flexible; a metal fuel which is reactive with the fluoropolymer binder oxidant; a thermally decomposable blowing agent effective upon decomposition to render the foamable igniter composition porous; and 15 a crosslinking agent effective to structurally stabilize the foamed igniter substance.

Furthermore, independent claim 21 requires the foamable igniter composition thereof to include: about 10 to about 60 composition weight percent of a fluoropolymer binder oxidant; about 1 to about 40 composition weight percent of a plasticizer effective to render the fluoropolymer binder material oxidant flexible;

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about 10 to about 50 composition weight percent of a metal fuel that is reactive with the fluoropolymer binder oxidant; about 0.1 to about 30 composition weight percent of a thermally decomposable blowing agent effective upon decomposition to render the foamable igniter composition porous; and about 0.5 to about 5 composition weight percent of a crosslinking agent effective to structurally stabilize the foamed igniter substance.

Foamable igniter compositions such as claimed are neither shown nor suggested by Spenadel which expressly teaches the use of blowing agents other than sodium bicarbonate in the compositions thereof and moreover teaches that blowing agents for use therein "should contain 3 to 10 carbon atoms and have a boiling point above 70° C. but not more than 200° C." neither of which conditions are met or satisfied by sodium bicarbonate.

In view of Spenadel not teaching or disclosing the use of sodium bicarbonate in the compositions thereof and further teaching that the blowing agents used in the compositions thereof should meet conditions with respect to number of carbon atoms and boiling point, and which conditions are not met or satisfied by sodium bicarbonate, the Examiner's proposed use of sodium bicarbonate in the composition of Spenadel finds no support in the cited art.

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With regard to subject rejected dependent claims, it is noted that claims 29 and 30 each require that the thermally decomposable blowing agent is a solid. As Spenadel teaches the use of liquid blowing agents (see column 2, lines 22-33 and claims 1 and 4-6, for example), claims 29 and 30 are believed to be further patentable over the art of record and notification to that effect is solicited.

5 The Final Action also includes some generalized statements regarding claim clauses being "essentially method limitations or statements of intended or desired use" and thus "do not serve to patentably distinguish the claimed structure over that of the reference." In response to the Applicants' preceding request that the Examiner identify the claims clauses considered by the Examiner to method limitations, in the Final Action the Examiner refers to "each occurrence of 'effective to' in the claims." The Final Action also lists again the same several case citations, including: *In re Pearson*, 181 USPQ 641; *In re Yanush*, 177 USPQ 705; *In re Finsterwalder*, 168 USPQ 530; *In re Casey*, 512 USPQ 235; *In re Otto*, 10 136 USPQ 458 and *Ex parte Masham*, 2 USPQ 2nd 1647, as support for the 15 proposition that such claim clauses are not be given patentable weight.

As noted in the preceding filed response and without any new contrary citation in the Final Action, it is well settled that an Examiner must consider functional language when evaluating the patentability of the claimed subject matter

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in view of the teachings of the prior art. *Lewmar Marine v. Bariant*, 3 USPQ2d 1766 (Fed. Cir. 1987). Furthermore, the "adapted to" characterization in a claim imposes a limitation that cannot be ignored when considering patentability. *Pac-Tec v. Amerace*, 14 USPQ2d 1871 (Fed. Cir. 1990); *Ex parte Conner*, 5 215 USPQ 384 (BPAI 1981); *In re Venezia*, 189 USPQ 149 (CCPA 1976).

Though the Final Action states that "these clauses are essentially method limitations or statements of intended or desired use" and these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference" (emphasis added), it is noted that the rejected 10 claims are each directed to gas generant compositions, not structures.

With regard to the cases identified above and cited in the Final Action, the following is noted:

1. *In re Yanush*; *In re Finsterwalder* and *Ex parte Masham* each involved apparatus claims, not composition claims;
- 15 2. *In re Otto* involved article of manufacture and method of making claims, not composition claims. Moreover, the method of making claims were in fact examined for functional limitations;

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3. *In re Casey*, cited in the Action as at 512 USPQ 235, could not be located. Upon the proper identification of a proper and appropriate cite, the case will be appropriately reviewed and considered;
4. None of *In re Pearson*; *In re Yanush*; *In re Finsterwalder*; *In re Otto* and *Ex parte Masham* involve the use of a "wherein" clause and
5. *In re Pearson* is the only one of the listed cases with composition claims but even there the Board specifically stated:

10 We do not mean to imply that terms which recite the intended use or a property of a composition can never be used to distinguish a new from an old composition. However, assuming their compliance with the definiteness requirement of the second paragraph of 35 U.S.C. 112, such terms must define, indirectly at least, some characteristic not found in the old composition. *In re Pearson*, 181 USPQ 641, 644. [Emphasis added.]

15 In the present case, the claim requirement for the inclusion of "a thermally decomposable blowing agent effective upon decomposition to render the foamable igniter composition porous" at the very least defines a characteristic not found in the compositions of Spenadel and such as employ a volatilizing, substantially gas-free organic blowing agent.

20 Based on the above, the rejections of claims 1-5, 7, 9, 10, 21, 22, 24, 29 and 30 as anticipated by or, in the alternative, obvious over Spenadel are improper and/or overcome and notification to that effect is solicited.

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2. **Claims 6 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Spenadel as applied to claims 1-5, 7-10, 21, 22 and 24 above, and further in view of U.S. Patent 2,748,098 to Passino (hereinafter "Passino")**

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The Final Action asserts that "Passino teaches the use of polytrifluorochloroethylene as a plasticizer for perhalocarbon polymers". The Final Action then contends:

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the plasticizer as taught by Passino with the composition of Spenadel since Passino suggests that it is useful with fluoropolymer binders and since Spenadel discloses that plasticizers may be used with Viton A, a fluoropolymer.

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The rejection of these claims on this basis is respectfully traversed.

Claim 6 is dependent on claim 1. Claim 23 is dependent on claim 21.

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As the proposed combination of Passino with Spenadel does not overcome the shortcomings discussed above regarding the rejections of claims 1 and 21 based on Spenadel, the withdrawal of the rejections of claims 6 and 23 based on the proposed combination of Spenadel with Passino is respectfully requested.

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3. **Claims 11 and 26-28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Spenadel as applied to claims 1-5, 7-10, 21, 22 and 24 above, and further in view of U.S. Patent 3,663,323 to Engel et al. (hereinafter "Engel")**

The rejection of these claims on this basis is respectfully traversed.

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Claim 11 is dependent on claim 1. Claims 26-28 are dependent on claim 21. As the proposed combination of Engel with Spenadel does not overcome the shortcomings discussed above regarding the rejections of claims 1 and 21 based on Spenadel, the withdrawal of the rejections of claims 11 and 26-28 based on the proposed combination of Spenadel with Engel is respectfully requested.

4. **Claim 25 was rejected under 35 U.S.C. §103(a) as being unpatentable over Spenadel as applied to claims 1-5, 7-10, 21, 22 and 24 above, and further in view of U.S. Patent 5,911,904 to Shih et al. (hereinafter "Shih")**

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The Final Action contends:

Shih et al teaches the use of p-toluene sulfonyl semicarbazide as a blowing agent that may be used instead of the more common blowing agent, sodium bicarbonate (col. 2, lines 45-65).

15

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the blowing agent as taught by Shih since Shih suggests that it is an improved blowing agent over the previously used sodium bicarbonate due to improved moisture resistance.

20

The rejection of claim 25 on this basis is respectfully traversed.

Claim 25 is dependent on claim 21. As the proposed combination of Shih with Spenadel does not overcome the shortcomings discussed above regarding the rejection of claim 21 based on Spenadel, the withdrawal of the rejection of claim 25 based on the proposed combination of Spenadel with Shih is respectfully requested.

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Moreover, as submitted above, the use of sodium bicarbonate as a blowing agent in the Spenadel composition is clearly contrary to the teachings in Spenadel. The Final Action has failed to identify any proper motivation for the use of p-toluene sulfonyl semicarbazide as the blowing agent, as required by claim 25, in the composition of Spenadel.

5. **Claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Spenadel as applied to claims 1-5, 7-10, 21, 22 and 24 above, and further in view of U.S. Patent 4,758,287 to Pietz (hereinafter "Pietz")**

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The Final Action asserts that "Pietz et al teaches that it is known to use air bag compositions, rocket, and firearm composition for interchangeable applications." The Final Action then contends:

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the composition as disclosed by Spenadel with air bag application since Pietz suggests that both rocket and air bag compositions can be used interchangeably.

The rejection of claim 14 on this basis is respectfully traversed.

20 Claim 14 is dependent on claim 1. As the proposed combination of Pietz with Spenadel does not overcome the shortcomings discussed above regarding the rejection of claim 1 based on Spenadel, the withdrawal of the rejection of claim 14 based on the proposed combination of Spenadel with Pietz is respectfully requested.

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Moreover, claim 14 is directed to a damper pad cushion for use in an automotive airbag inflator. Claim 14 requires the damper pad cushion to comprise the foamable igniter composition of claim 1 and further requires that the foamable igniter composition of claim 1, upon being heated to a predetermined temperature at a select pressure in a mold having a desired shape, forms a foamed damper pad cushion.

5 Pietz is entitled, "POROUS PROPELLANT GRAIN AND METHOD OF MAKING THE SAME." The Action fails to identify any disclosure in Pietz directed to a damper pad cushion let alone identify any disclosure in Pietz directed to a damper pad cushion comprising a foamable igniter composition or, even more so, 10 the Action fails to identify any disclosure in Pietz directed to a foamed damper pad cushion, as required by claim 14. Thus, Claim 14 is believed to be further patentable thereover and notification to that effect is solicited.

#### **Withdrawn Claims**

15 Claim 1 is believed to be generic such that upon the allowance of thereof, Applicants are entitled to consideration of those claims to additional species which are written in dependent form. As withdrawn claims 12, 13 and 15-20 are dependent on claim 1, these previously withdrawn claims are also believed to be in condition for allowance and notification to that effect is solicited.

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**Conclusion**

In view of the above, all pending claims are believed to be in condition for allowance and notification to that effect is solicited. However, should the Examiner detect any remaining issue or have any question, the Examiner is kindly requested to contact the undersigned, preferably by telephone, in an effort to expedite examination of the application.

Respectfully submitted,



Nick C. Kottis  
Registration No. 31,974

Pauley Petersen & Erickson  
2800 West Higgins Road; Suite 365  
Hoffman Estates, Illinois 60169  
TEL (847) 490-1400  
FAX (847) 490-1403

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